

SPECIFICATION AMENDMENTS

On page 1, insert above line 1, insert--Priority Claim

The present application claims priority on European Patent Application 02016088.3 filed 19 July 2002.--

On page 1, above line 1, insert--Field of the Invention--

Paragraph at line 1 of page 1 has been amended as follows:

--The invention is ~~directed~~related to a silicon rubber composition comprising a hydrocarbon extender oil. The invention is also ~~directed~~related to a process to make such an extender oil.--

On page 1, above line 5, insert--Background of the Invention--

Paragraph at line 5 of page 1 has been amended as follows:

--Process oils are used in silicon rubber compositions as a cheap extender oils to reduce formulation costs. Key requirements for process oils for this application are full silicon oil compatibility but also good UV stability and low volatility. Widely available extender oils used for this purpose are naphthenic oils and hydroprocessed paraffinic petroleum oils. Hydroprocessed paraffinic petroleum oils are preferred for this use.--

Paragraph at line 14 of page 1 has been amended as follows:

--A disadvantage of the use of hydroprocessed paraffinic petroleum oils is that although some oils show excellent UV stability they show ~~less good~~ reduced silicon oil compatibility at higher oil contents.--

Paragraph at line 18 of page 1 has been amended as follows:

-- ~~The object of the present invention is~~ It would be useful to provide a silicon rubber composition wherein the content of extender oil can be increased while properties such as UV stability and volatility are not worsened as compared to when a

hydroprocessed paraffinic petroleum derived oil is used because of their low volatility and good UV stability.--

Paragraph at line 25 of page 1 has been amended as follows:

-- ~~This object is achieved by the following composition. Silicon~~ The invention is directed to a silicon rubber composition comprising a hydrocarbon extender oil, wherein the oil is a Fischer-Tropsch derived oil.

The invention is also directed to a process for making an extender oil.--

On page 2, above line 1, insert--Detailed Description of the Invention--

Paragraph at line 1 of page 2 has been amended as follows:

--Applicants found that when the Fischer-Tropsch derived oil is used an improved UV stability, and lower weight loss is observed as compared to when the hydroprocessed paraffinic petroleum oils are used. Furthermore the Fischer-Tropsch derived oil is found to be very compatible with the silicon rubber, even at high oil contents. The latter is very advantageous for economic reasons because the composition may comprise more of the Fischer-Tropsch derived oils. It is known that naphthenics oils have good compatibility with silicon rubber. It was thus a surprising finding that a Fischer-Tropsch derived oil, which is expected to contain high amounts of paraffins, shows such good silicon rubber compatibility. --

Paragraph at line 15 of page 2 has been amended as follows:

The Fischer-Tropsch derived oil preferably has a kinematic viscosity at 40 °C of between 5 and 18 mm²/sec, and more preferably below 12 mm²/sec. The pour point of the oil is preferably below -20 °C and more preferably below -30 °C. The ~~sulphur~~ sulfur content in the oil is preferably below 30 ppm and the nitrogen content is preferably below 100 ppm. Fischer-Tropsch derived oils will generally contain even lower levels of ~~sulphur~~ sulfur and nitrogen, preferably below 10 ppm ranges. Applicants further found that the Fischer-Tropsch derived oil preferably has a CN number as measured according to IEC 590 of between 15 and 30%.--

Paragraph at line 27 of page 2, ending at line 4 of page 3, has been amended as follows:

-- Examples of processes, which can for example be used to prepare the above-described Fischer-Tropsch derived oils, are described in EP-A-776959, EP-A-668342, US-A-Pat No 4943672, US-A-Pat No.5059299 and WO-A-9920720. The process will generally comprise a Fischer-Tropsch synthesis, a ~~hydroisomerisation~~hydroisomerization step and an optional pour point reducing step, wherein said ~~hydroisomerisation~~hydroisomerization step and optional pour point reducing step are performed as:

- (a) hydrocracking/~~hydroisomerising~~ hydroisomerizing a Fischer-Tropsch product,
- (b) separating the product of step (a) into at least one or more distillate fuel fractions and an extender oil fraction.--

Paragraph at line 8 of page 3 has been amended as follows:

-- Optionally, the pour point of the extender oil is further reduced in a step (c) by means of solvent or preferably catalytic dewaxing of the oil obtained in step (b) to obtain oil having the preferred low pour point.--

Paragraph at line 13 of page has been amended as follows:

--Examples of Fischer-Tropsch synthesis processes steps to prepare said Fischer-Tropsch product and ~~hydroisomerisation~~hydroisomerization steps (a) are known from the so-called commercial Sasol process, the commercial Shell Middle Distillate Process or the non-commercial Exxon process.--

Paragraph at line 18 of page 3 has been amended as follows:

-- A In a preferred process to prepare the process oil having the desired CN-values (according to IEC 590), ~~is when the a Fischer-Tropsch derived feed or product used in step (a), which feed is characterized in that the~~ has a weight ratio of compounds having at least 60 or more carbon atoms and compounds having at least 30 carbon atoms ~~in the Fischer-Tropsch derived feed is~~ of at least 0.2 and wherein at least 30 wt% of compounds in the Fischer-Tropsch derived feed have at least 30 carbon atoms.--

Paragraph at line 9 of page 4has been amended as follows:

-- The initial boiling point of the Fischer-Tropsch derived feed may range up to 400 °C, but is preferably below 200 °C. Preferably, ~~at least~~ compounds having 4 or less

carbon atoms and compounds having a boiling point in that range are separated from a Fischer-Tropsch synthesis product before the Fischer-Tropsch synthesis product is used as a Fischer-Tropsch derived feed in step (a). The Fischer-Tropsch derived feed as described in detail above will for the greater part comprise of a Fischer-Tropsch synthesis product. In addition to this Fischer-Tropsch product also other fractions may also be part of the Fischer-Tropsch derived feed. Possible other fractions may suitably be any high boiling fraction obtained in step (b).--

Paragraph at line 23 of page 4 has been amended as follows:

-- Such a Fischer-Tropsch derived feed is suitably obtained by a Fischer-Tropsch process, which yields a relatively heavy Fischer-Tropsch product. Not all Fischer-Tropsch processes yield such a heavy product. An example of a suitable Fischer-Tropsch process is described in WO-A-9934917 and in AU-A-698392. These processes may yield a Fischer-Tropsch product as described above.--

Paragraph at line 31 of page 4, ending at line 18 of page 5, has been amended as follows:

-- The hydrocracking/hydroisomerisation hydroisomerization reaction of step (a) is preferably performed in the presence of hydrogen and a catalyst, which catalyst can be chosen from those known to one skilled in the art as being suitable for this reaction. Catalysts for use in step (a) typically comprise an acidic functionality and a hydrogenation/dehydrogenation functionality. Preferred acidic functionalities are refractory metal oxide carriers. Suitable carrier materials include silica, alumina, silica-alumina, zirconia, titania and mixtures thereof. Preferred carrier materials for inclusion in the catalyst for use in the process of this invention are silica, alumina and silica-alumina. A particularly preferred catalyst comprises platinum supported on a silica-alumina carrier. If desired, the acidity of the catalyst carrier may be enhanced by applying a halogen moiety, in particular fluorine, or a phosphorous moiety to the carrier. Examples of suitable hydrocracking/hydroisomerisation processes and suitable catalysts are described in WO-A-0014179, EP-A-532118 and the earlier referred to EP-A-776959.--

Paragraph at line 19 of page 5 has been amended as follows:

-- Preferred hydrogenation/dehydrogenation functionalities are Group VIII metals, such a as nickel, cobalt, iron, palladium and platinum. Preferred are the noble metal

Group VIII members, palladium and more preferred platinum. The catalyst may comprise the more preferred noble metal hydrogenation/dehydrogenation active component in an amount of from 0.005 to 5 parts by weight, preferably from 0.02 to 2 parts by weight, per 100 parts by weight of carrier material. A particularly preferred catalyst for use in the hydroconversion stage comprises platinum in an amount in the range of from 0.05 to 2 parts by weight, more preferably from 0.1 to 1 parts by weight, per 100 parts by weight of carrier material. The catalyst may also comprise a binder to enhance the strength of the catalyst. The binder can be non-acidic. Examples are clays and other binders known to one skilled in the art.--

Paragraph at line 3 of page 6 has been amended as follows:

-- In step (a) the feed is contacted with hydrogen in the presence of the catalyst at elevated temperature and pressure. The temperatures typically will be in the range of from 175 °C to 380 °C, preferably higher than 250 °C and more preferably from 300 to 370 °C. The pressure will typically be in the range of from 10 bar to 250 bar and preferably between 20 bar and 80 bar. Hydrogen may be supplied at a gas hourly space velocity of from 100 to 10000 NI/l/hr, preferably from 500 to 5000 NI/l/hr. The hydrocarbon feed may be provided at a weight hourly space velocity of from 0.1 to 5 kg/l/hr, preferably higher than 0.5 kg/l/hr and more preferably lower than 2 kg/l/hr. The ratio of hydrogen to hydrocarbon feed may range from 100 to 5000 NI/kg and is preferably from 250 to 2500 NI/kg.

Paragraph at line 17 of page 6 has been amended as follows:

--The conversion in step (a) as defined as the weight percentage of the feed boiling above 370 °C which reacts per pass to a fraction boiling below 370 °C, is at least 20 wt%, preferably at least 25 wt%, but preferably not more than 80 wt%, more preferably not more than 65 wt%. The feed as used above in the definition is the total hydrocarbon feed fed to step (a), thus may also include any optional recycle of a high boiling fraction which may be obtained in step (b).--

Paragraph at line 6 of page 7 has been amended as follows:

-- The silicon rubber component may be a state of the art silicon rubber as described in Rubber Technology Handbook, Werner Hofmann, Oxford University Press,

New York, 1980, paragraph 3.4.1. Silicon rubbers have a main polymer chain, which mainly consist of silicon and oxygen atoms. On the silicon atoms in the chain, hydrocarbon groups, like for example, methyl, ethyl or phenyl, may be present. Small amounts of termonomer with vinyl groups may also be present in the rubber. ~~Next~~ In addition to the silicon rubber and the extender oil, vulcanizing agents, fillers, stabilizers and softeners may also be present in the silicon rubber composition.--

Paragraph at line 2 of page 9 has been amended as follows:

-- Approximately 25 g of the freshly prepared oil-silicon mixture as obtained after turbo mixing was ~~weighted~~ weighed in an Aluminium pan to the nearest 0.1 mg (Aluminium pan with 28 ml volume, lower diameter 51 mm, upper diameter 64 mm). The weight loss is was determined from two samples after 21 days, first 7 days storage at room temperature (20 °C) followed by 14 days at 70 °C. The results are summarized in Table 2.-

On page 12, above line 1, insert --We claim:--